

Machinery.—They use no machinery at the tunnels, but at the breaker they use one breaker engine, 45-horse power, and 2 locomotives, 20-horse power each, to haul coal from the drifts to the breaker to get prepared; the boilers have been cleaned and examined and reported in good condition; they have a steam gauge to indicate the pressure of steam.

Remarks.—They have furnished a map of mines; they have second openings for each tunnel; they have a house for men to wash and change in; the mining boss seems to be a practical and competent man; he has persons to assist him; there are no boys working in the mines under 12 years of age; the engineers seem to be experienced, competent and sober men; the parties having charge know their duty in case of death or serious accident; the breaker machinery is fenced and boxed off so that operatives are safe. They use one locomotive of 20-horse power to run coal from the mines to the breaker.

LOCAL COAL SALE MINES IN THE 12TH WARD OF THE CITY OF SCRANTON.

One of these mines is operated by Gardner, Clark & Co.; the opening to the coal consists of a tunnel and a "slope which they are just sinking;" there is a small breaker connected with these mines which has a capacity of cleaning and preparing 80 tons of coal per day. The other is operated by John Gibson & Co.; they work at these two mines 40 men and boys; this vein is called the Rolling Mill vein; average thickness, 5 feet; the roof is good hard rock; the mines are not systematically worked.

SCRANTON COAL COMPANY'S MINE.

This mine is located in Lackawanna township and situated on the west bank of the Lackawanna river; the slope is 550 feet long to the first lift, then a level of 270 feet, and then 450 feet long to the bottom; it is 7 feet high by 16 feet wide; it is operated by the Delaware, Lackawanna and Western railroad company. Richard M. Hackett is mining boss and John A. Mears is outside foreman.

Description.—There is a breaker connected with this mine 600 feet away; they mine and prepare about 450 tons of coal per day; they employ 59 miners, 59 laborers, 29 drivers, 8 door-boys and 22 company men in the mine; 56 slate pickers, 10 head and plate men, 5 drivers, 20 company men, 6 mechanics and 2 bosses outside; in all 276 men and boys; they are working the "G" or Big vein; average thickness 13 feet; they work headings 12, airways 18 and chambers about 30 feet wide; they leave pillars from 15 to 21 feet wide to sustain the roof; they leave cross-entrances about 60 feet apart for the purpose of ventilation; the roof is good slate; the mine is in good working condition.

Ventilation is produced by means of a furnace located 1,500 feet from the main opening; the intake is located at mouth of drift north of breaker, area 42 feet; the outcast is located in Furnace air shaft, area 36 feet; the amount of fresh air is 24,000 cubic feet per minute; there is noxious, poisonous and inflammable gas evolved in the mine; the mine is examined every morning before men go to work and every evening to see that the main doors are all closed; the main doors are hung so that they will close of their own accord; they have attendants at main doors; they have double doors on main traveled roads and an extra one in case of an accident to any of the others; the amount of ventilation has been measured and reported; ventilation is good.

Machinery.—They use one hoisting engine of 80-horse power, one hoisting engine inside of 60-horse power, two steam pumps of 25 and 18-horse power each; one breaker engine of 95-horse power in breaker engine room; they have a metal speaking tube in the mines; they have an adequate brake and flanges of sufficient strength for safety attached to their hoisting drum; the boilers have been cleaned and examined and reported in good condition; they have a steam-gauge to indicate the pressure of steam.

Remarks.—They have furnished a map of the mine; they have a second opening 700 feet from main opening; they have no house for men to wash or change in; the mining boss seems to be a practical and competent man; there are no

angle of inclination is $9^{\circ} 35'$. The slope was driven part of the way through coal, at a cost of \$364, but there were $28\frac{3}{4}$ yards of rock to cut, from nought up to eight feet, which cost \$283 33, and 77 yards driven through sandstone, which cost \$3,080. The whole cost for sinking the slope was only \$3,952 33. They have a pair of engines, 13-inch cylinder and 18-inch stroke; estimated horse power, 50; the size of their drum is six feet diameter, which has an approved brake attached to it. There is no second opening to the slope, but they are driving for one toward No. 1 drift, and expect to make a connection soon.

OTHER NEW OPENINGS AND CONNECTIONS.

The Delaware, Lackawanna and Western railroad company have made connections between the Hampton shaft and the Oxford shaft, at Hyde Park, and between Tripp's slope and the Brisbin shaft, in the Third ward, Scranton. They have also sunk an air shaft, at Hyde Park, into the workings of the Oxford shaft, and connects also with the Hampton shaft workings. A fan is to be placed at this air shaft which will assist in ventilating both collieries named.

The Pennsylvania coal company have completed a new slope at No. 1 tunnel, in Pittston township, which is intended for hoisting coal. They have also made a second opening for No. 4 slope, in Jenkins township, which is to be used also for ventilation; and the workings of old No. 10 shaft in the 14-foot seam, have been connected with the new No. 10 shaft, in Pittston. No. 2 shaft, Dunmore, was sunk to the lower seam.

The Delaware and Hudson canal company have made a connection, in the 14-foot seam, between Marvine and Leggetts Creek shafts, Providence; and at No. 1 shaft, Carbondale, an air shaft has been sunk, and two more air shafts at No. 3 shaft, and still another at the Coal Brook colliery. These air shafts are only poor-make shifts, unless mechanical means are used to produce ventilation. There are too many of them in Carbondale. What is needed there is a system of air courses inside of the collieries.

At the Filer colliery, Winton, a drift has been driven from a ravine into the workings, for a traveling way for the men to go to and from their work. A new drift has been opened at the Greenwood colliery for mining coal, and the same company have made an additional opening for coal at the Sibly colliery, in Old Forge township. An opening has been made at the Green Ridge slope for ventilation. The above are all the openings and connections made in the district during the year, so far as I am informed.

IDLE AND ABANDONED COLLIERIES.

The Archbald shaft, Lackawanna township, and Oxford shaft, Hyde Park, owned by the Delaware, Lackawanna and Western railroad company, were idle all through the year; the last work done at the Hyde Park shaft was done in February, and the **Scranton coal company's drifts** at Bellevue were idle. Bellevue slope and shaft worked only $22\frac{1}{2}$ days.

No. 1 shaft, Pittston township, owned by Pennsylvania coal company, was idle; No. 2 and No. 3 shafts were abandoned as hoisting shafts, and are now used as pumping shafts.

The Marvine shaft, Providence; Powderly slope, Carbondale township, and Breaker, Forrest and Jefferson tunnels, Carbondale City, all owned by the Delaware and Hudson canal company, were idle.

The following collieries have also been idle: Rolling Mill colliery, Scranton, consisting of a slope, tunnel and drift; the Ontario colliery, Pleasant Valley, and the Heidelberg colliery, Pleasant Valley. Spring Brook No. 1

work the Rock seam out that was left in the Oxford shaft. The rock seems to be of better quality east of the shaft than on the west.

Central Shaft.

This shaft has been re-timbered, as to new buntons and guides, from bottom to top, and also a new fan put in to re-place the old one.

Oxford Shaft.

Put in new cribbing on top of shaft, and are now in process of sinking from Rock to big and Clark seams of coal about one hundred and sixty feet deeper.

Oxford Air-Shaft.

Has connected with G or big seam workings in Central mines. Put in two new hoisting engines, also a fan engine; also a new fan, twelve feet diameter by three and a half feet face. The intention is to lower the coal from the Diamond and Rock seams to the Big and hoist it up the Central main shaft. The distance to be lowered is one hundred feet. Also put in new cribbing on top of shaft.

Scranton Coal Company's Slope.

This mine has been cleaned and new rails re-laid preparatory to commence to work the Clark seam of coal, are now ready to operate. This slope has been idle for years.

No. 2 Diamond Shaft E or Diamond seam.

Are sinking a new slope from the Diamond to the Rock or F seam. The opening is seven by eleven feet in the clear. More than half the distance is already sunk.

Tripp Slope

Made an extra opening in the West mountain, by driving up the pitch about 40° for ninety feet, then sunk a shaft, fifty-seven feet deep. It gives an intake for air in the extreme end of the mine workings, and an opportunity for the men to come out that way, if they feel so disposed. This shaft is one and three fourths miles from the mouth of the slope.

Brisbin Shaft.

A heading has been driven to the outcrop on the West mountain from the level gangway, and they are now grading three gravity planes to let the coal down the steep grades from the West mountain side.

Cayuga Shaft.

This shaft has been overhauled, and new cribbing put in to a depth of about sixty feet from the surface.

Storr's Shaft.

This is a new shaft, located in Dickson City borough. It is about two thousand feet northwest from the Lackawanna river. The sinking is pro-

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